**Funding Sources, Financing Options and Program Frameworks that Facilitate Implementation of Green Stormwater Infrastructure**

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The following is an output of the Green Infrastructure Leadership Exchange Deep Dive on green stormwater infrastructure funding and financing held in November 2016. Significant contributions come from Seth Brown of Storm and Stream Solutions, LLC, Craig Holland of NatureVest, John Germain, and Sanjiv Sinha of ECT. Funding provided by Summit Foundation, Pisces Foundation, Surdna Foundation, and Kresge Foundation.

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**Public Funding Sources** - Sources of government revenues that are used for Green Stormwater Infrastructure (GSI) implementation. Examples do not necessarily reflect all aspects of the description provided, and the list is not exhaustive. Additional areas to explore in future analyses for their applicability to GSI include crowdfunding, local option taxes, and special assessment districts.

| Type | Description | Challenges | Strengths | Examples |
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| General Funds | ● Derived from property & other local taxes<br>● Common source of funding for GSI | ● Non-dedicated and irregular<br>● Not correlated with stormwater produced, therefore inequitable | ● Relatively inexpensive source of funding, if available | |
| Grants | ● Includes a variety of public and private sources | ● Unreliable and inconsistent<br>● Generally smaller funding allocations | ● Inexpensive | New Orleans |
| Special Service Taxes | ● Similar to General Funds, but may require some allocation to stormwater | ● Not coordinated with stormwater produced, therefore inequitable | ● Leverageable, but relatively higher cost of funding | Fairfax County |
| Permit Fees | ● Derived from reviewing, permitting and inspecting plans | ● Unreliable | | |
| Sales Tax | ● Derived from taxes on the sale of certain goods | ● Unreliable<br>● Uncoordinated<br>● Unleverageable | ● Brings revenue from surrounding counties/suburbs | Atlanta |
| Wastewater Fees with Stormwater Carve-out | ● Similar to a stormwater fee, though it only bills parcels that are metered | ● Inequitable | ● Reliable | Detroit |

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| Stormwater Utilities | • Most based on parcel size, impervious cover | • May require enabling legislation and must be legislatively mandated with same priority as real estate taxes in order to optimize leverage options and costs | • Dedicated<br>• Predictable<br>• Reliable<br>• Equitable<br>• Leverageable through financing | Philadelphia |

**Public Financing Options** - Tools that leverage public funding. Public financing options are typically used by public entities to scale up and/or accelerate public projects. Examples do not necessarily reflect all aspects of the description provided, and the list is not exhaustive. Additional areas to explore in future analyses for their applicability to GSI include private activity bonds, taxable bonds, and state bond banks.

| Type | Description | Challenges | Strengths | Examples |
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| Municipal Project Revenue Bonds | • Issued by local governments to finance capital projects<br>• Tied to community credit rating<br>• Secured by the revenues and only the revenues generated by the projects being funded | • Bond agreements and perception among loan entities limit use for GSI | • Most cities are familiar with process and procedures<br>• Issuer can either be a municipal or private entity (P3 partner). If carefully structured – could be structured off balance sheet of municipal entity. | Prince George's County |
| General Obligation Bonds | • Issued by local governments to finance capital projects<br>• Tied to community credit rating | • Bond agreements and perception among loan entities limit use for GSI | • Most cities are familiar with process and procedures | Philadelphia |

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| | • Secured by the issuer's full faith, credit and taxing power | | | |
| State Revolving Funds | • Loan program developed through the Clean Water Act; GSI is eligible<br>• Provides loans or may also provide AAA-rated bond insurance for communities with lower credit ratings, the proceeds of which are used to fund GSI loans | • Application process is not set up for GSI and can be difficult and complex<br>• SRF Bond Insurance market "evolving" and is on a state by state basis. Standardization of SRF for GSI is critical to maximize its usability. | • GSI SRF LOANS EXPLICITLY OFFER THE LOWEST COST OF GSI FUNDING BESIDES GRANTS AND ARE "READILY AVAILABLE"<br>• AAA-rated funding levels translate to below market rates<br>• Can be used by private parties if connected to a public project meeting SRF eligibility<br>• SRF bond insurance can leverage overall investment by 10:1 ratio (available insurance capacity VS loan capacity) | Lancaster, Philadelphia |
| WIFIA | • Authorizes EPA to provide long-term, low-cost rate loans at U.S. Treasury rates<br>• Structured to work hand in hand with State Revolving Funds; borrowers decide which program is best for them | • New and untested for water infrastructure | • Modeled after successful TIFIA transportation infrastructure loan program | |

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| Green Bonds | • Investments in environmentally beneficial bonds<br>• Essentially the same as traditional municipal bonds, except for the green label | • No discernible pricing benefits<br>• Certification of “green bond” status can add costs | • May be attractive to socially responsible investors | San Francisco, St. Paul |

**Private Financing Options** - Tools that leverage public or private funding. Examples do not necessarily reflect all aspects of the description provided, and the list is not exhaustive. Additional areas to explore in future analyses for their applicability to GSI include program related investments.

| Type | Description | Challenges | Strengths | Example |
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| Bank Loans | • Private capital from banks | • More expensive than public financing | • Effective short-term funding (i.e., before SRF kicks in)<br>• Appropriate when a public entity is not authorized to issue bonds, has reached bond capacity, or is saving bond capacity for other infrastructure<br>• Can leverage private funding, allowing the private sector to accelerate implementation and reducing compliance risk to public entity | |
| Private Equity | • Private capital investments | • Very expensive | • Could be an option | |

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| | in high risk projects | • May involve some loss of control | where credit worthiness is a risk | |
| Social Impact Investing | • Typically paired with a Pay for Success implementation framework, in which private investors pay the upfront capital to achieve a achieve specific outcomes<br>• Public sector only pays the investors back if the outcomes are achieved<br>• May be set up like a bond, in which debt is issued by the public entity | • Nascent financing mechanism that requires repayment and affects overall debt capacity of public entity<br>• Investors probably charge market rate of return or higher<br>• Introduces variable rates<br>• No market standardization | • Does not require public entity to issue debt (although some some structures are set up as bonds) | DC Water |

**Implementation Frameworks -** Program structures for GSI delivery. These structures can be layered with the funding and financing options listed above to support GSI implementation. Examples do not necessarily reflect all aspects of the description provided, and the list is not exhaustive.

| Type | Description | Challenges | Strengths | Example |
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| Public Procurement | • Projects are delivered through a public entity's capital program<br>• Often paired with development regulations, incentives, grants and other programs to secure stormwater management on private property<br>• Source of payment is public | • Subject to public procurement in which elements of project implementation (design, build, maintain), are typically addressed separately<br>• Implementation on private property typically requires an | • Makes use of existing procedures | Philadelphia |

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| | and projects are typically implemented on public property | ownership easement | | |
| Public Private Partnership | • Projects are delivered by a private partner or consortium of private partners in agreement with a public entity<br>• Typically awarded through a competitive bidding process<br>• Source of payment can be public or private and projects may be implemented on public or private property<br>• A P3 and a performance contract are not the same thing. A performance contract is when a public entity specifies targets based on outcomes and/or costs (i.e., X outcomes at Y cost). A private entity or third party agrees to deliver that target and payment is contingent upon success. A performance contract could live within a P3 -- but a P3 does not necessarily include “performance” based measures. | • May require enabling legislation | • Improves upon the public delivery model by providing integrated services and employing private procurement approaches | |
| Community | • Developed by EPA Region | • May require enabling | • Public entity may have | Prince |

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| Based Public-Private Partnership | III<br>• A legal partnership between a public agency and a private aggregator<br>• Source of payment can be public or private and projects may be implemented on public or private property | legislation | more control compared to a traditional P3<br>• More emphasis on social benefits compared to traditional P3 | George's County |
| Pay-for-Success Model | • Type of performance based contract. Implementation is privately financed.<br>• Financiers are paid back by the public entity only if pre-established metrics are met by the implementer<br>• Source of payment is public and projects are typically implemented on public property | • Possibly more complex and expensive than a Performance Contract/ P3<br>• No profit sharing<br>• New and uncertain<br>• Early PFS deals (see Rikers Island recidivism rate PFS deal), have not met outcomes envisioned<br>• Other, lower cost options with less risk exposure are available | • Could provide good terms to municipality if effectively negotiated | DC Water |
| Watershed Improvement District | • New concept being considered in Detroit in which a third party can implement projects on private property, manage fee rebates, manage private financing, and execute trades within a city district<br>• Predicated on stormwater | • New and untested<br>• Bill rebate may not be sufficient to sustain WID | • Responsibilities of water and sewer agency are distributed into regional districts | Detroit |

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| | bill rebate, which must produce savings for property owners, pay back the financiers, and sustain the WID | | | |
| Aggregated Grant Program | • Grants provided to private entities to implement GSI on a large scale on private property<br>• Stormwater fee savings among private property owners often helps pay for maintenance | • Funds from public sources likely limited | • Efficiencies gained through project aggregation<br>• Opens door to development companies that can leverage private financing | Philadelphia (GARP) |
| Trade Program | • Includes offsets, in which developers can manage stormwater on another property to meet regulations, or trading, in which developers or agencies can purchase credits on a market<br>• Primary source of funding is private. Projects are typically implemented on private property | • Complex tracking and administration<br>• Cost to purchase a credit must be sufficiently low to generate demand, yet must be sufficiently high to encourage retrofits<br>• Absent aggregation, may not maximize cost savings | • Provides more flexibility for developers in meeting regulations<br>• May encourage stormwater management on private property where there is minimal development pressure<br>• Opens door to development companies that can leverage private financing | DC District Department of Energy and the Environment |

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